	APOLLO HOSPITALS, SECUNDERABAD	MOM – 4b
		Issue: C
	POLICY AND PROCEDURE ON EDUCATION REGARDING SAFE MEDICATION & POTENTIAL FOOD DRUG INTERACTION	Date:06-01-2017
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## 1.1. PURPOSE / CONTEXT

- 1.1.1. To identify educational needs of Patient and Patient family on safe medication, drug – drug interaction and potential Food-Drug Interactions, so that optimal benefits from both medication and food can be obtained and harmful interaction can avoided.
- 1.1.2. To improve Patient outcome.


## 1.2.SCOPE / APPLICABILITY

- 1.2.1. This Policy and Procedure applies to all patients treated at Apollo Hospital, Secunderabad.

## 1.3.DEFINITION

- 1.3.1. **Food Drug Interaction** - The pharmacological result, either desirable or undesirable, of drugs interacting with components of the diet.

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#### **1.4. RESPONSIBILITY**

1.4.1. Attending Doctor or his / her team member, DMO, Nurse In charge, Nurse, Dietician and OP Pharmacy are responsible to implement this procedure.


#### **1.5. POLICY**

1.5.1. Patient and/or family members are to be educated on safe medication and potential Food-Drug Interactions when required.

#### **1.6. PROCEDURE**

- 1.6.1. Attending Doctor or his / her Team Member, DMO, Nurse, Dietician is to identify the educational needs of Patients and Patient family on safe medication, Drug-Drug Interaction and Food-Drug Interactions, as appropriate and educate them on the same.
- 1.6.2. Attending Doctor or his / her Team Member should advise for Dietary Counseling for medication, causing Food-Drug Interaction, as necessary.
- 1.6.3. OP Pharmacist to educate Out-Patients / attendants for any drug-drug / food-drug interactions before dispensing medications to them over the counter.

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1.6.4. Example of Medications which may require Dietary Counseling are as follows:

S.NO	DRUG NAME	S.NO	DRUG NAME
1	Coumadin	5	Isonaizid
2	Iron Supplements	6	Lithium
3	MAO Inhibitors	7	Potassium-Losing Diuretics
4	Tetracycline		

1.6.5. The requirement of dietary counseling to be recorded in Non-Drug Orders sheet of patient case sheet by the doctor.

1.6.6. All education imparted to Patient and Patient family to be recorded in Patient and family education chart by doctor or in others notes by dietician or in nurses notes by the nurse.

1.6.7. The following are the points (but not limited to) that are to be addressed in educating patient and patient family.


Allergies

Side effects

Drug-Drug Interaction (e.g. No anticoagulant with sleeping pills)

Food-Drug Interaction (e.g.: No Alcohol when taking Metronidazole)

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Safe medication (e.g. education on importance of taking drug at a specific time.

### 1.7. EXAMPLES OF DRUG-DRUG INTERACTION

- 1.7.1. Mixing antidiabetic medication (e.g., oral hypoglycemics) and beta blockers (e.g., Inderal) can result the decreased response of the antidiabetic drug and increased frequency and severity of low blood sugar episodes.
- 1.7.2. Mixing antidiarrheal medication (e.g., Lomotil) and tranquilizers (e.g., Transxene, Valium), sedatives (e.g., Dalmane, Quaalude), or sleeping pills (e.g., Amytal, Nembutal, Seconal) can result in an increased effect of tranquilizers, sedatives, or sleeping pills.
- 1.7.3. Mixing antihypertensive medication (e.g., Reserpine, Aldoril, Combipres) and digitalis (e.g., Lanoxin) can result in abnormal heart rhythms.
- 1.7.4. Mixing anticoagulants (e.g., Coumadin, Warfarin) and sleeping pills (e.g., Nembutal, Amytal, Seconal) can result in decreased effectiveness of the anticoagulant medication.
- 1.7.5. Aspirin can significantly increase the effect of blood thinning drugs (anticoagulants), thus increasing the risk of excessive bleeding.
- 1.7.6. Antacids can cause blood-thinning drugs (anticoagulants) to be absorbed too slowly.
- 1.7.7. Antacids can interfere with drug absorption of antibiotics (i.e., tetracycline), thereby reducing the effectiveness of the drug in fighting infection.
- 1.7.8. Antihistamines, often used for allergies and colds, can increase the sedative effects of barbiturates, tranquilizers, and some prescription pain relievers.

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1.7.9. Decongestants in cold and cough medications can interact with diuretics or "water" pills to aggravate high blood pressure.


1.7.10. Iron supplements taken with antibiotics can reduce or stop the ability of the antibiotics to fight infection. (The chemicals in the supplement and the antibiotic bind together in the stomach, instead of being absorbed into the bloodstream.)

1.7.11. Salt substitutes can interact with "water" pills or blood pressure medication to increase blood potassium levels. This can result in symptoms of nausea, vomiting, muscle cramp diarrhea, muscle weakness, and cardiac arrest.

#### 1.8. MEDICATION WHICH SHOULD BE TAKEN ON AN EMPTY STOMACH

Alendronate (Fosamax)	Ampicillin	Astemizole	Bethanechol
Bisacodyl	Captopril (Take 1 hour before meals)	Cefibuten (cedax)	Cilostazol (pletal)
Demeclocycline	Dicloxacillin	Didanosine (Videx)	Etidronate (Didronel)
Felodipine (Plendil)	Indinavir (Crixivan)	Lansoprazole (take before eating)	Levothyroxine
Loratadine (Claritin)	Loracarbef (Lorabid)	Methotrexate	Moexipril (Univasc)
Mycophenolate (Cellcept)	Ompرازole Take before eating	Oxacillin	Penicillamine
Perindopril (Aceon)	Repaglinide (Prandin)	Rifampin	Rifabutin (Mycobutin)
Riluzole	Roxithromy	Sucralfate	Sulfamethox

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(Rilutek)	cin (take at least 15 minutes before or after a meal)	(Carafate)	zolet-rimethoprim (Bactrim)
Sulfadiazine	Tetracycline (Do not take with milk or other dairy products)	Talcopone (Tasmar)	Zafirlukast (Accolate)
Zalcitabine (Hivid)			

#### 1.9. MEDICATIONS WHICH SHOULD BE TAKEN WITH FOOD

Allopurinol (take after meal)	Atovaquone (Mepron)	Augmentin	Aspirin
Amiodarone (Cordarone)	Baclofen (Lioresal)	Bromocriptine (Parlodel)	Clofazimine (Lamprene)
Carvedilol (Coreg)	Carbamazepine (Tegretol)	Chloroquine	Cimetidine (Tagamet)
Cefpodoxime (Vantin)	Diclofenac (Voltaren)	Divalproex sodium (Depakote)	Doxycycline
Felbamate (Felbatol)	Fenofibrate (TriCor)	Fiorinal	Fludrocortisone
Fenopropfen	Griseofulvin	Glyburide (take with breakfast)	Hydrocortisone
Hydroxychloroquine	Indomethacin	Iron preparations	Itraconazole

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(Plaquenil)		(Take between meals-if GI upset occurs take with food)	
Ketorolac	Lithium	Metronidazole	Misoprostol (Cytotec)
Methanamine	Mebendazole	Methylprednisolone	Naltrexone
Naproxen	Nelfinavir (Viracept)	Nitrofurantoin	Niacin
Olsalazine	Perphenazine	Pentoxifylline	Pergolide
Piroxicam	Potassium salts	Prednisone	Procainamide
Ritonavir (Norvir)	Salsalate	Saquinavir	Sevelamer (Renagel)
Spiroglactone	Sulfasalazine	Sulfinpyrazole	Sulindac
Ticlopidine	Tolmetin	Trazodone	Troglitazone
Valproic acid			

#### 1.10. DRUG - GRAPEFRUIT INTERACTIONS

Drugs which may exhibit increased serum concentrations based on this interaction.

amiodarone	astemizole	alprazolam	atorvastatin
benzodiazepines	buspirone	carbamazepine	carvedilol
cerivastatin	cilostazol	clarithromycin	Clomipramine
Codeine	cyclosporine	dapsone	dextromethorphan

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diazepam	diltiazem	estrogens	erythromycin
felodipine	fentanyl	finasteride	haloperidol
indinavir	lercanidipine	lidocaine	lovastatin
midazolam	methadone	nelfinavir	nifedipine
nicardipine	nimodipine	nisoldipine	nitrendipine
ondansetron	paclitaxel	progestins	progesterone
quinidine	ritonavir	salmeterol	saquinavir
simvastatin	tacrolimus	trazodone	triazolam
vincristine	zaleplon	zolpidem	
Note: there may be omissions on this list. Absence of a drug does not necessarily indicate that the drug lacks this potential interaction.			


1.11. **WARFARIN – FOOD INTERACTIONS**

1.12. **Management of Dietary Interactions and Vitamin K:** dietary consistency is the key to maintaining a sustained, stable response during warfarin therapy. Patients should be aware of vitamin K content in common foods, particularly foods high in vitamin K (green leafy vegetables (broccoli, Brussel sprouts, turnip greens, kale, spinach, beet greens), Cauliflower, legumes, mayonnaise, canola and soybean oils), and should maintain a consistent amount of these foods in their diet.

1.13. The following foods should be avoided or limited, since they also can effect warfarin therapy: caffeinated beverages (cola, coffee, tea, hot chocolate, chocolate milk). Alcohol intake greater than 3 drinks daily can increase the effect of Coumadin. As long as alcohol intake does not exceed 3 drinks daily, clotting times should not be

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affected. This amount of alcohol is present in 12 ounces of table wine or three 12-ounce beers. (Acute binges can raise INR. Chronic alcohol ingestion may decrease INR.)

- 1.14. Herbal supplements can affect bleeding time. Coenzyme Q10 is an herbal supplement whose chemical structure is similar to vitamin K, so it has the potential to affect bleeding time. Herbal teas: green tea, buckeye, horsechestnut, tonka, bean, meliot, and woodruff. Other examples include: feverfew, garlic, and ginseng. Herbal medications should either be avoided or used consistently while on Warfarin therapy.


DRUG	EFFECTS & PRECAUTIONS
ANTIBIOTICS	
Cephalosporins, Penicillin	Take on an empty stomach to speed absorption of the drugs
Erythromycin	Do not take with fruit juice or wine, which decrease the drug's effectiveness
Sulfa drugs	Increase the risk of vitamin B12 deficiency
Tetracycline,	Dairy products reduce the drugs effectiveness. lowers vitamin B6
ANTI-CONVULSANTS	
Dilatin , Phenobarbital	Increase risk of anemia and nerve problem due to deficiency of folate and other B vitamins
ANTI-DEPRESSANTS	
Fluoxetine	Reduces appetite and can lead to excessive

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	weight loss.
Lithium	A low -salt diet increases the risk of lithium toxicity; excessive salt reduces the drug's effectiveness
Monoamine oxidase(MAO)inhibitors	Food high in tyramine(aged cheese ,processed meats, legumes, wine, beer among others) can bring on a hypertensive crisis
Tricyclics	Many foods, especially legumes, meat, fish, and foods high in vitamin C, reduce absorption of the drugs.
ANTI-HYPERTENSIVES,HEART MEDICATIONS	
Angiotensin – converting enzyme (ACE) inhibitors	Take on empty stomach to improve the absorption of the drugs.
Alpha-blockers	Take with liquid or food to avoid excessive dropping blood pressure
Antiarrhythmic drugs	Avoid caffeine which increases the risk of irregular heartbeat
Beta blockers	Take on empty stomach, food, especially meat, Increases the drug's effects and can cause dizziness and low blood pressure.
Digitalis	Avoid taking with milk and high fiber foods, which reduce absorption, increases potassium loss
Diuretics	Increase the risk of potassium deficiency. Minerals usually excreted with excess water are sodium, potassium, magnesium and zinc.
Potassium sparing diuretics	Unless a doctor advise otherwise, do not take diuretics with potassium supplements or salt substitutes, which can cause potassium
Thiazide	Increase the reaction to MSG

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pseudoephedrine	Avoid caffeine, which increases feeling of anxiety and nervousness
Theophylline	Charboiled foods and high protein diet reduce absorption. Caffeine increases the risk of drug toxicity
Cholestyramine	Increases the excretion of folate and vitamins A,D,E &K
Gemfibrozil	Avoid fatty foods ,which decreases the drug's efficiency in lowering cholesterol
Antacids	Interfere with the absorption of many minerals, for maximum benefit; take medication 1 hour after eating. Phosphate deficiency is a concern for those who chronically abusing over- the- counter antacids.
Cimetidine, Famotidine, sucralfate	Avoid high protein foods, caffeine and other items that increase stomach acidity.
HORMONE PREPARATIONS	
Oral contraceptives	Salty foods increase fluid retention. drugs reduce the absorption of folate, vitamin B6,and other nutrients increases intake of food high in these nutrients to avoid deficiency
Steroids	Salty foods increase fluid retention. increase intake of foods high in calcium, vitamin K, potassium, zinc, vitamin C, vitamin B6 and protein to avoid deficiency
Cyclosporin	leads to hyperkalemia, in which case increasing potassium intake from food should be avoided.
Thyroid drugs	Iodine-rich foods may lower the drug's efficacy
PAIN KILLERS	

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Aspirin and stronger non steroidal anti inflammatory drugs	Always take with food to lower the risk of gastrointestinal irritation , avoid taking with alcohol, which increases the risk of bleeding, frequent use of these drugs lowers the absorption of folate and vitamin C
codeine	Increase fiber and water intake to avoid constipation.
Benzodiazepines	Never take with alcohol. caffeine increases anxiety and reduce drugs effectiveness
Weight loss inducing drug	Many drug causes weight loss because of changes in appetite or other side effects.
MEDICATIONS FOR TUBERCULOSIS	
Isoniazid	May cause depletion of vitamin B6, niacin, calcium and vitamin B12

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